

REMARKS

Amendment summary

Claims 22, 23 and 25-33 are currently pending in the application. Claims 16-21 and 24 are canceled.

Claims 25-33 are newly added. Claim 25 is a product-by-process claim, and support for each of claims 26-30 may be found, e.g., at least in the claims canceled by this Amendment.

Support for Claim 31 may be found, e.g., at least in Table 1 on page 27 of the present specification.

Support for Claims 32-33 may be found, e.g., at least in Table 1 on page 27 of the present specification, and on pages 20-21 of the present specification, which discuss the measurement of the bonded ratio.

The dependency of Claim 22 has been amended.

No new matter is added by this Amendment, and entry of this Amendment is respectfully requested.

Status of the claims

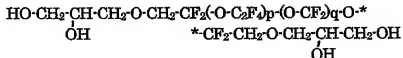
Claims 18-24 have been objected to. Claim 19 has been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Ishida (U.S. Patent Application Publication No. 2003/0175470). In addition, claims 19-20 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Shimokawa (JP 2002-25046). Claims 16-18 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Shimokawa in view of Gui (U.S. Patent No. 6,099,937). Further, claims 20-23 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ishida. Claim 24 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ishida in view of Fomblin Z Derivatives—Product Data Sheet (hereinafter “Fomblin”).

Response to claim rejections

Applicant notes that claims 16-21 and 24 are canceled, and respectfully submits that the presently claimed invention is not rendered obvious by the cited references because no cited reference discloses or suggests the unexpectedly superior properties of the presently claimed invention. By the cancellation of the previously-pending claims, Applicants believe that all

rejections except the § 103 rejection based on Shimokawa in view of Gui have been rendered moot. Independent claim 25 most closely resembles previously-pending claim 18, which was rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Shimokawa in view of Gui.

Claim 25 recites a lubricant for use in manufacturing a magnetic disk, comprising a compound represented by the following formula:



The lubricant is prepared by a method comprising the following steps: preparing a crude lubricant which includes at least the compound; degassing an impurity gas from the crude lubricant in a reduced pressure; after the degassing, vaporizing a degassed lubricant into a vaporized lubricant; and purifying the vaporized lubricant into the lubricant by liquefying the compound molecules of the vaporized lubricant within a distance less than a mean free path of the compound molecules.

As illustrated, for example, in Table 1 of the present specification, the presently claimed invention possesses superior molecular weight distribution, principal component content, bonded ratio, coverage, and durability. These unexpectedly superior properties are neither disclosed nor suggested in the cited art, and Applicant respectfully submits that the presently claimed invention is therefore not rendered unpatentable by the references.

For the Examiner's ease of reference, Table 1 (from page 27) of the present specification is set forth below:

	Purification Method	Heating Temperature	Weight-average Molecular Weight	Molecular Weight Distribution		Content of Principal Component	Bonded Ratio	Lubricant Coverage	LUL Durability	Fly Station Processing Percentage
Example 1	Molecular Distillation Method	180	5130	1.14	90%	85%	95%	Durable until 800,000 times	100%	
Example 2	Molecular Distillation Method	200	6900	1.15	92%	84%	95%	Durable until 800,000 times	100%	
Example 3	Molecular Distillation Method	170	4800	1.15	95%	85%	92%	Durable until 800,000 times	100%	
Example 4	Molecular Distillation Method	160	4200	1.10	86%	82%	92%	Durable until 800,000 times	100%	
Comparative Example 1	Supercritical Extraction	—	7340	1.31	85%	80%	92%	Damaged after 300,000 times	60%	
Comparative Example 2	Not Purified (A crude lubricant was used)	—	6000	1.33	79%	76%	80%	Damaged after 200,000 times	50%	

Examples 1-4 correspond to the presently claimed invention. On the other hand, Comparative Example 1 is outside the scope of the presently claimed invention because it utilizes a different distillation method. Comparative Example 2 is outside the scope of the presently claimed invention because it does not utilize a purified lubricant.

Table 1 clearly illustrates the unexpectedly superior properties of the presently claimed invention. In particular, Applicants note the last two columns of the table. The LUL Durability of the presently claimed invention was measured as being durable to 900,000 times (for each of the Examples), which is 3-4.5 times better than the durability of the Comparative Examples (300,000 and 200,000 times, respectively). The fly stiction test-passing percentage of the Examples (each 100%) was also unexpectedly superior to the fly stiction test-passing percentage of the Comparative Examples (60% and 50%, respectively). Further, the molecular weight distribution of Examples 1-4 are each superior to the molecular weight distribution of the Comparative Examples. Whereas the molecular weight distribution of the Examples is from 1.10 to 1.15, the molecular weight distribution of the Comparative Examples is 1.31 and 1.33, respectively. Similarly, Table 1 illustrates how the presently claimed invention provides for lubricants which have a higher content of principal component. The amount of principal component in the Examples ranges from 86% to 95%, whereas the amount of principal component in the Comparative Examples is from 79% to 85%. Table 1 also shows that the bonded ratio of the Examples is unexpectedly superior to the bonded ratio of the Comparative Examples (82-85% versus 78-80%).

Accordingly, Applicant respectfully submits that the presently claimed invention possesses unexpectedly superior properties, and thus the cited references do not anticipate or render obvious the presently claimed invention. Applicant therefore respectfully submits that the presently claimed invention is patentable over the cited art.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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